How to / Trackmania / General / Graphic formats

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Section 3: Format TGA

TGA is basically a **lossless** picture compression format, which can be read/written by every graphic editing or graphic viewing software.

Within Trackmania, it is mostly used for high quality applications like icons and graphics in the **user interface**, and it's used for a few graphics within **environment modifications**.

This example is a set of buttons used within the Track editor. The grey background represents the transparency around the actual objects.

Characteristics:
- Compression influences color implementation, but no pixel compositions.
- Resulting file sizes are a lot larger than for JPG, but higher quality.
- TGA can store transparancy/alpha channel information.

Section 4: Format DDS

DDS stands for "Direct draw surface", a **lossy** compression format. Usually, these are texture graphics, applied on the surface of a 3D model in order to give the surface some "material like" quality, but DDS files can also be used to display simple 2D pictures...

In Trackmania, DDS files are layed upon all kind of **objects** (like **cars**, **track tiles**, **buildings**) but they're also used for displaying simple pictures like **avatars**, Mediatracker images or advertisement signs.

This example shows the "StadiumGrassfence.dds" graphic, which determines the structural look of your grass surface. The checkerboard represents the transparancy.

Characteristics:
- X/Y dimensions must each be 2^n (2,4,8,16,32,64,128,256,etc..). Examples of valid picture dimensions: 128*128, 512*256, 1024*64 etc...

- DDS can store transparancy/alpha channel information.

UPDATE FOR TRACKMANIA-FOREVER:
In the new version of the game, almost all textures you can use, are compressed with **DXT1A** compression. See the next section for details...

Section 5: Format DDS in Details

Depending on what the DDS file is used for, the demands on the stored information are different. The anatomy a DDS file is as follows. A Red, Blue and Green channel and usually an Alpha channel. Alpha channels were originally designed for transparency/opacity.

These are examples how Trackmania uses DDS texture graphics:

D/N/S Maps

Diffuse Maps (to store simple textures / surface pictures)
Normal maps (to store relief information. Normal maps are special "Bump maps")
Specular maps (to store shininess / matte information)

For practical examples on **how to create** every single one of these maps, **read here**.

Example:
When doing environment modifications, you can change the surface of the road completely.

Diffuse Map
The normal "picture" of the road surface.

This is what you see in every case.

Specular Map
Determines in what color th
e road parts shine.
The alpha channels determines HOW MUCH parts shine
0% transparency=shiny
100% transparent=matte

Normal Map
The different Cyan/Blue shades represent the "height" of the road parts.

Nadeo special: All red pixel values are put into the Alpha channel...

PC0/1 graphic settings	PC2 graphic settings	PC3 graphic settings

MIP Maps

"Mip maps" are progressively smaller and smaller versions of the original image that are tacked on to the original image.

This technique takes work off the GPU when rendering the image at varying distances and yields superior results and better frame rates.
When opening a file to edit however, open it without the mipmaps visible to make things easier on yourself.

And don't be afraid, it's not YOU who will have to paint every single mip map, the DDS plugin/software will automatically create + save these mip maps for you, if you want it.

Trackmania will **require mip maps** to be added in almost all your textures (although sometimes it doesn't really make sense). So be sure to add them, as soon as you save the file.

Cube maps

A "Cube map" is a texture, to be layed upon a .. cube object ^^ It will determine the looks of all sides of the cube...
Trackmania uses this type of map on exactly 1 occasion, when dealing with environment modification.

cube map

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